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Annual Research Highlights

Sixth Edition

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SIXTH EDITION

1980-81

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FOREWORD

This is the sixth edition of Annual Research Highlights published by the Planning and Research Branch. Its primary purpose is to provide a guide to the operation of the Branch and to report in capsule form on a selection of research projects completed through contract with or by the Branch over a one-year period (July 1, 1980 to June 30, 1981).

The first edition of Annual Research Highlights contains abstracts of selected studies completed from the time the Research and Planning Branch was first organized in 1974 to the end of June, 1976. The second, third, fourth and fifth editions contain abstracts of studies completed between July 1 and the following June 30 in 1976-77, 1977-78, 1978-79 and 1979-80 respectively. These publications provide information about a selection of research studies which were undertaken by classroom practitioners, school systems, and educational organizations and which relate directly to some aspect of basic education (ECS to Grade 12) in Alberta since the Branch's inception.

W. P. Eddy
Education Consultant
Planning and Research Branch

THE PLANNING AND RESEARCH BRANCH

Branch Organization

The Planning and Research Branch is a service branch of Alberta Education which provides information to planning and policy-makers within Alberta Education to assist in making realistic decisions about educational directions and programs. The Branch also provides information through Alberta Education to the education community.

The Branch is divided into two sections. A policy section identifies existing and future problems and generates policy alternatives, and a research section carries responsibility for coordinating research and disseminating the results of this research to appropriate users.

How Are Studies Handled?

Many of the projects undertaken by the Branch were initiated by school boards, related educational organizations, universities, colleges or school business officials. The remainder were commissioned by Alberta Education as internal management studies or as projects undertaken in cooperation with other departments or provinces.

With the exception of those studies which are carried out by the Planning and Research Branch staff for internal management purposes, all studies and projects are handled by contract. Contracts are entered into with incorporated individuals, organizations and institutions. For example, in a classroom-based project or study undertaken by a teacher, the contract would be between the school board and Alberta Education.

All projects must provide for an adequate evaluation component. Proposals should include a description of how they are to be evaluated and include an adequate budget for evaluation.

All research projects and studies are supervised by a liaison officer from the Planning and Research Branch. For all contracted projects, a steering committee is appointed.

How Are Studies Selected for Funding?

The study must:

1. Relate directly to some aspect of basic education in Alberta;
2. Focus primarily on applied or developmental research as opposed to basic research;
3. Have a researchable component which tests new ideas, new methods, new program delivery techniques and/or new administrative and management practices which will improve services to the child in the classroom;

4. Have applications for other school systems in Alberta;

5. Lead to results that are potentially cost-effective, in the following order:
    i. better service at less cost
    ii. better service at the same cost
    iii. equivalent service at less cost
    iv. better service at a marginally increased cost;

6. Lead to minimal implementation and on-going costs;

7. Reflect provincial priorities.

Research Priority Areas

Provincial priorities change from time to time in order to reflect both emergent and long term needs. Some current priorities include the following:

1. Exceptional Children (problem learners, gifted students and others)

    a. Assessment techniques and procedures (identification, screening and diagnosis)
    b. Program innovations: development and implementation
    c. Evaluation: programs and student progress

2. Pupil Instruction, Learning and Growth

    a. Alternative patterns of instruction
        i. work experience, work study and special projects
        ii. other
    b. Conditions for learning

3. Pupil, Program and School Evaluation

    a. Cost studies (e.g., benefit, utility, and effectiveness)
    b. Conditions for learning
    c. Teaching methodology and outcomes
    d. Student achievement assessment programs
    e. Teaching effectiveness studies

4. Use of Technology--Feasibility, Practicality and Appropriateness of:

    a. New equipment
    b. New and improved programming (software)
    c. Effective application and use of equipment and software

5. The Improvement of Local Planning and Management Capabilities

    a. Futures planning
    b. Resource management (personnel, facilities, finances)
    c. Program needs assessment (non-instructional services)

d. Program evaluation (non-instructional services)

In general, more favorable consideration is given to those requests for funding which provide for a commitment of human and financial resources from the applicants.

How Can You Access Research Funding?

There are basically two steps in applying for financial support.

1. An applicant should submit a brief prospectus summarizing the needs, purpose, general methodology, expected outcomes and budget requirements of the project.
2. If the prospectus meets general criteria and overall priorities, the applicant will be advised to develop and submit a detailed proposal.

Who Do You Contact?

Dr. M. R. Fenske, Director, Planning and Research Branch, Alberta Education, 9th Floor Devonian Building (West Wing), 11160 Jasper Avenue, Edmonton, Alberta, T5K 0L2.

1980-81 RESEARCH PROJECTS

INTRODUCTION

A majority of the following research projects were initiated in response to the needs of decision-makers who must resolve educational problems and/or concerns. They were brought to the attention of the Planning and Research Branch by school boards, other branches of Alberta Education and other educational organizations. The Branch continued to give priority to studies proposed by the practitioner to improve service to the child in the classroom and lead to results that are potentially applicable to all classrooms in the province.

The reader will note that each summary contains information about the distribution of copies of the study. The best procedure to obtain a copy of a study would be to contact a school in your area, or association libraries such as the Alberta Teachers' Association, the Alberta School Trustees' Association and the Alberta Federation of Home and School Associations, the libraries of provincial secondary institutions, or Regional Offices of Education. The Planning and Research Branch also has a limited number of copies of some of the project reports which are available as long as supplies last.

TABLE OF CONTENTS

Page

Calgary Junior High School Mathematics Project. 1

Canadian Awareness Project 3

The Carnegie Unit: Pros, Cons and Alternatives 5

Certificated Education Staff Evaluation 7

Classroom Management and Achievement: A Literature Review 9

Computer Assisted Instruction in Schools 11

Elementary Language Arts: Statements of Content and Skills 13

Energy Conservation: Modifications to Existing Schools 15

Field Testing of Citizenship Instruments 17

Further Outcomes of the Language Arts Project (ECRI) in the Cardston School Division 19

The Future of Education in the Bonnyville/Cold Lake/ Grand Centre Area of Alberta 20

Microcomputers in Alberta Schools 22

Projecting K-12 Teacher Supply and Demand in Alberta 23

Vocational Education in West Germany 25

CALGARY JUNIOR HIGH SCHOOL MATHEMATICS PROJECT

Purposes

The major purposes of this study were to investigate: (1) What levels of cognitive development are demonstrated by grade 7 and 8 students in the contexts of fractions and ratios? (2) What are the cognitive demands of the present Alberta school mathematics curriculum in the contexts of fractions and ratios? (3) How well do the curricular demands fit the cognitive abilities of the students? (4) Will the use of teaching strategies that are adaptable to student cognitive levels significantly improve achievement in and attitude towards fraction and ratio topics?

Design

Following cognitive ability, achievement, attitude, and general mathematical strategy assessments of 480 grade 7 and 333 grade 8 students, 246 grade 7 and 120 grade 8 students were taught fractions and ratio topics by a concrete process-oriented method while the rest of the students were taught in the regular way. Three-factor and two-factor repeated measure analyses of variance were used to determine whether or not statistically significant improvements in fraction or ratio achievement, attitude, or general mathematical strategies had occurred.

Major Findings

A considerable gap was found between student cognitive level and curricular demand in the contexts of grade 7 and 8 fractions and ratios.

Overall, but particularly at the grade 7 level, the project has demonstrated that a concrete, process-oriented approach can result in significantly improved achievement in, and attitude towards, fractions and ratios while enhancing the development of general mathematical strategies and maintaining computational facility.

Recommendations

Some versions of the teaching strategies used in this project should be made widely available, with suitable inservicing, in the form of alternative approaches that can be inserted in existing programs.

The findings of the study should be widely distributed in support of present curricular policies which indicate that operations with fractions should be postponed to the seventh and eight grades.

Efforts should be made to develop, and evaluate in classrooms, similar approaches to other topics and other grade levels.

Bibliographic Information

M. P. Bye, B. Harrison, S. Brindley, Calgary Junior High School Mathematics Project Final Report, Alberta Education, December, 1980, 117 pages.

Distribution

The report will be distributed to all Alberta superintendents of schools, junior high schools in Alberta, and to libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Canada, the ERIC Document Service and Micromedia.

CANADIAN AWARENESS PROJECT

Purpose

The purpose of this study was to test samples of Alberta students on their knowledge and understanding of Canadian history, geography and citizenship.

Design

About 3,000 students in each of grades 6, 9 and 12 wrote tests on Canadian history, geography and citizenship. A total of over 1,400 items were used in the tests which were based on general interest, and not on the current curriculum. Matrix sampling was used. More than 1,000 items were used in total; each student responded to a portion of the items for each grade.

Findings

The median marks in each of history, geography and citizenship were reported. Interpretation of the results depends on a judgement of the validity of the questions and whether they reflect the community's expectations of student knowledge.

Citizenship: Summary and Conclusions

1. While and levels of students' achievement are not high in grades 6 and 9, of greater concern to the Committee is the low achievement in grade 12.

2. Students at all three grade levels do not have an acceptable knowledge of citizenship. The deficiency is greatest in grade 12.

3. Students tend to perform better on items requiring knowledge of current or topical affairs.

4. Students at all levels lack a knowledge of important facts.

5. Areas of strengths and weaknesses tend to follow from grade 6 through grade 9 and grade 12.

6. Inadequacy of student knowledge is displayed on both written response and objective items.

Because students' lack of awareness about citizenship could result in their inability to perform duties as responsible Canadian and world citizens, this Committee is apprehensive.

History: Summary and Conclusion

In light of Canada's unique and exciting history this Committee is sharply disappointed with the overall results of the history tests. Furthermore, to the extent that factual historical knowledge could inhibit a person's ability to develop a sense of national identity, the Committee is dismayed at the level of knowledge indicated by the results. The Committee believes that a firm knowledge of one's national history (set in a world context) can greatly encourage a sense of justifiable pride in one's country. Greater historical knowledge can only lead to that end.

The Committee is disappointed that the median of students responding correctly is only 39 per cent for grade 7, 40 per cent for grade 9 and 39 per cent for grade 12. In the opinion of this Committee students at all levels lack an adequate knowledge base in Canadian history to enable them to deal with current social and political issues.

Geography: Summary and Conclusions

Students at all three grade levels displayed a weak understanding of economic geography, demographic concepts and regional disparity. They had difficulty with factual and specific information. On the written response items they had problems with understanding and using basic terms and generally answered in a minimal fashion. On the maps, broader areas of knowledge are better identified than the fine detail.

Canada's physical environment is characterized by its vastness, resources, landscape, land use, climate, population and the interrelationship of these components, among others. For that reason the Committee believes there is a need to develop a greater sense of awareness of these concepts in our younger citizens.

Bibliographic Information

Minister's Advisory Committee for the Canadian Awareness Project, Canadian Awareness Project Report: Summary, June, 1981, 95 pages.

Minister's Advisory Committee for the Canadian Awareness Project, Canadian Awareness Project Report, June, 1981, 232 pages.

Distribution

The report was distributed to all Alberta superintendents of schools, all Alberta schools, and to libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Canada, the ERIC Document Service and Micromedia.

THE CARNEGIE UNIT: PROS, CONS AND ALTERNATIVES

Purpose

This research paper reviews the origin of the Carnegie Unit-of-Credit concept (time-credit relationship) and its adoption as the basis for: high school organization of courses and programs in terms of credits, measuring a student's progress through high school and establishing the criteria for the high school diploma.

Background

The Carnegie Unit has been used in Alberta as a necessary (but not sufficient) condition for awarding senior high school credits. The fundamental assumption underlying the use of the Carnegie Unit is that the amount of time (i.e., number of hours and years) spent in the study of a subject is an adequate indicator of achievement, rather than the amount of knowledge acquired, competence and the quality of learning. Accordingly, in order to qualify for credits and the high school diploma, a student must be in attendance in class for a required amount of time and also demonstrate whatever minimal competency achievement level is required by the school.

Pros and Cons

Advantages in the use of the Carnegie Unit include: its universal acceptance and credibility, its lack of ambiguity, and its facilitation of the administrative aspects in developing curriculum, organizing for instruction, and awarding credits to students. It is also easily understood by principals, teachers, students and parents. A major disadvantage is that it is based on the unwarranted assumption that all students must spend the same amount of time in the study of a subject as a necessary condition to the awarding of credits.

Most of the research findings relative to studies of scheduled time versus achievement reveals that there is little or no relationship. Hence, organizing school programs and awarding credits on the basis of scheduled time ignores what is known about individual differences and lacks empirical justification.

Alternative Programs

Various experimental programs have been tried in order to modify or replace the Carnegie Unit.

Minimum Competency Tests

Minimum competency testing has been characterized by a notable lack of consensus about what, how and when to measure. In addition, there are divergent opinions about follow-up measures. To date, there are no research results which are totally supportive of this approach.

Learning Contracts

Learning contracts with individual students (and sometimes including their parents) have a long history in many settings. Advantages of this approach include, in particular, the recognition of individual differences in many of the conditions necessary for learning. The main disadvantages are related to students' immaturity and inability to work independently and the lack of teacher time which is so necessary to provide for adequate supervision, preparation and feedback to the student.

Other

Other alternative approaches which have been experimented with or considered include: high school proficiency examinations, challenge tests and computerized item banking services.

However, regardless of the various alternative methods which have been tried, the need still remains for criterion such as the Carnegie Unit in order to satisfy expectations for the maintenance of uniformity in standards.

Bibliographic Information

P. J. Baker, The Carnegie Unit: Pros, Cons and Alternatives, Alberta Education, January, 1980, 33 pages.

Distribution

The report will be distributed to all Alberta superintendents of schools and school board chairmen, Alberta junior and senior high schools, and to libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Canada, the ERIC Document Service and Micromedia.

CERTIFICATED EDUCATION STAFF EVALUATION

Purpose

This was a survey to determine current practices and policies involved in the formal evaluation of certificated education staff in Alberta.

Design

The survey was done by means of a questionnaire sent to local school jurisdictions. The survey attempted to find out whether the local jurisdictions had an active policy for teacher evaluation, had there been any change in teacher evaluation practices and policies since 1977, and did the jurisdictions have an active policy for evaluation of other certificated personnel such as central office administrators, supervisors, etc.

Summary of Findings

1. Of the jurisdictions responding in 1980, 59 per cent reported having a written evaluation policy but only 47 per cent provided copies of their policy.

2. Of the jurisdictions who reported that they had a written evaluation policy, only 55 per cent reported that they carried out that policy. Of the others, 21 per cent reported that the policy was not being implemented and 24 per cent gave no response.

3. Of the responding jurisdictions, 45 per cent reported that they formally evaluate all teaching staff and 3 per cent reported that they do not evaluate any teaching staff.

4. Teaching staff are the primary recipients of formal evaluation; there is a significantly lower rate of evaluation of other certificated staff.

5. Evaluation of teaching staff occurs primarily in the first year with a jurisdiction--90 per cent of staff are evaluated during their first year with a system.

6. The majority (72 per cent) of staff new to the profession are evaluated two or more times during their first year.

7. Tenured staff are evaluated considerably less frequently than are non-tenured staff.

8. Almost one-half of the jurisdictions do not use a standard form for evaluation of certificated staff.

9. In addition to using formal evaluations for making career decisions, such as permanent appointment, promotion, or dismissal, jurisdictions frequently use these evaluations for improving the performance of all categories of certificated staff.

10. Not all jurisdictions provided the person being evaluated with a copy of the written evaluation; 77 per cent of the jurisdictions stated that they did this.

11. The data revealed that beginning teachers were being evaluated more frequently in 1980 than they had been in 1977.

12. In 1980, an increasing number of tenured teachers, teachers new to the system, and teachers new to teaching were being evaluated on an annual basis, as compared to 1977.

13. Between 1977 and 1980 the use of formal evaluations for the purpose of improving performance has dramatically increased. (18 per cent in 1977 and 83 per cent in 1980).

14. In 1977, only 18 per cent of the jurisdictions reported that they used a standard form for evaluating certificated staff, while 52 per cent did so in 1980.

Bibliographic Information

Planning and Research Branch, Certificated Education Staff Evaluation, Alberta Education, September, 1980, 23 pages.

Distribution

The report was distributed to all Alberta superintendents of schools, school board chairman, and libraries of the Regional Office of Education, Alberta Teachers' Association, Alberta School Trustees' Association, faculties of education in Canada, the ERIC Document Service and Micromedia.

CLASSROOM MANAGEMENT AND ACHIEVEMENT: A LITERATURE REVIEW

Purpose

The purpose of this study was to carry out a review of the literature on teaching strategies subsumed under classroom management.

Design

Since a comprehensive review of all of the studies is impractical, major studies relating managerial skills to achievement (or a proxy measure), are reviewed beginning with a discussion of the relationship between classroom management and instructional management.

Summary of Findings

The review of major studies dealing with the relationship of classroom management to achievement allows the following summary statements:

1. Process-Product research, seeking to develop generic traits or behaviors of effective teaching, has produced some convincing evidence linking classroom management and instructional management. A "direct instruction" model of teaching in elementary grades stresses efficient use of learning time (time-on-task) in order to improve achievement (Rosenshine's model).

2. These research findings have been translated into lists of skills or principles or strategies which teachers can be taught and can use successfully (The Texas, Stanford and Alberta studies).

3. These same studies have shown that teacher inservice training in the use of these skills can be effective, and that such training can produce a more efficient use of learning time (time-on-task) with subsequent improvement in achievement.

4. At present, the results of these studies apply only to arithmetic and language arts in lower elementary grades.

5. Research into teacher and student characteristics and into probing the classroom as a dynamic social system, has resulted in findings that indicate more complex interactions than are predicted from generic research. While some of the results may appear to contradict the generic findings, many modify or complement them. The conclusions from these studies are significant enough to warrant their inclusion or consideration in future research designs and should act as a brake on the temptation to accept such simple modes as that of "direct-instruction" as panaceas for universal application.

Bibliographic Information

L. Fedigan, Classroom Management and Achievement: A Review of the Literature, Alberta Education, May, 1980, 60 pages.

Distribution

The report was distributed to all Alberta superintendents of schools, all schools in Alberta, and to the libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, and Regional Offices of Education.

COMPUTER ASSISTED INSTRUCTION IN SCHOOLS

Purpose

This is a literature review of computer assisted instruction (CAI) and its effects on education.

Design

A detailed literature review was undertaken of the larger and more important CAI projects in the United States, Europe and Canada.

Recommendations

Among the recommendations in the report are that Alberta Education:

1. Encourage and facilitate the use of multi-user microcomputer systems for computer assisted instruction (CAI).
2. Encourage the purchase of small microcomputers by schools, to be used for computer literacy and small-scale computer-assisted instruction.
3. Encourage adequate documentation of CAI programs produced locally.
4. Facilitate the development of courseware by teams of teachers and other persons having experience in CAI.
5. Set up a mechanism for facilitating exchange of courseware both within and outside the province.
6. Provide encouragement and high professional status for those teachers who have competency in CAI so that they will participate in projects and engage in the development of courseware.
7. Require new teachers to have some knowledge of computers in education.
8. Introduce courses on computing into the school curriculum.

Those students who will benefit the most from CAI are those requiring repeated instructions and individual attention, namely, the handicapped, the disadvantaged, the students in rural areas, students in adult education courses, students studying topics for which computer simulations are appropriate and students studying foreign languages.

Bibliographic Information

H. J. Hallworth and Ann Brebner, Computer Assisted Instruction in Schools, Alberta Education, June, 1980, 236 pages.

H. J. Hallworth and Ann Brebner, Computer Assisted Instruction in Schools: Summary, Alberta Education, June, 1980, 10 pages.

Distribution

The report was distributed to Alberta superintendents of schools and to libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Canada, the ERIC Document Service and Micromedia. The summary was sent to all Alberta schools.

ELEMENTARY LANGUAGE ARTS: STATEMENTS OF CONTENT AND SKILLS

Purpose

The purpose of this evaluation was to determine:

1. The value to local school district educators of a provincially developed statement of content and skills; and,

2. The influence of a centrally-developed policy requiring the specification of knowledge, skills and attitudes on local school district educators' efforts to implement these statements.

Design

The conceptual framework for the study was derived from the research literature on curriculum development, implementation and evaluation, and suggested questions from Alberta Education personnel.

A ten per cent sample of schools housing both grades 2 and 5 was randomly selected from a population of 972 Alberta schools. Quantitative data from the survey questionnaire were analyzed by a statistical computer program.

Findings

The findings for the three value questions indicate that there is a need for further in-service activities on the provincial statements, especially for teachers who have students requiring remedial and enrichment activities and materials.

The influence of a provincial policy on local school district educators implementing the provincial statements was minimal.

Conclusions

It is concluded that, if centrally developed policies are to have a greater influence on implementation, then the policy makers need increased communication with local educators during and after the formulation of curriculum policies.

Bibliographic Information

B. P. Brunner, An Implementation Evaluation Study of the Elementary Language Arts Statements of Content and Skills, Ph.D. Dissertation, University of Oregon, August, 1980, 251 pages.

B. P. Brunner, Elementary Language Arts: Statements of Content and Skills Summary, Alberta Education, August, 1980, 59 pages.

Distribution

The summary report was distributed to Alberta superintendents of schools, and to libraries of Regional Offices of Education.

ENERGY CONSERVATION: MODIFICATIONS TO EXISTING SCHOOLS

Purpose

The purpose of this study was to recommend specific changes that can be made to existing schools to reduce energy consumption, and to monitor the result of such changes in actual practice.

Design

The project was divided into a two phase program as follows:

1a. Prepare an energy conservation report to evaluate current energy conservation practices and produce programs and recommendations designed for selected schools.

1b. Implement the energy conservation programs produced in two of the schools.

2. Monitor and analyze the programs in the two selected schools.

Findings

The modifications made to each school were spelled out in detailed lists.

Guidelines and Recommendations

Summary comments which indicate the main points for existing schools are:

a. Energy Conversion: From natural gas to heat involving heat exchange surfaces is the most significant energy waste. The single boiler plant is the greatest offender and there is clear evidence to suggest that extended-fin water tube boilers of the high-flux type renewed every five years would be a better investment than the large single boiler plant now in use.

b. Primary Air Movement: The modern accent on fresh air ventilation and consequent requirements of make-up air had led to excessive wastes of energy, particularly if outside air dampers do not provide for 90 per cent shut off. Reliance on the constant air volume reheat system of air distribution has serious energy economy deficiencies.

   Air circulation must be reduced on demand--i.e., variable air volume and fresh air introduction must not be a function of the outside air temperature.

c. Secondary Air Movement: Exhaust air must be regarded as a valuable commodity and used before it is exhausted--i.e., directed to the boiler room for pressurization or temper the combustion air. Heat exchangers will certainly become more economic on exhaust air "run around" systems.

d. Lighting Levels, and Electrical Energy Conversion: Lowered lighting intensities, better wide-bands of colour integrity, and better energy-to-light conversion should be expected from the new lighting technologies now available. Better switching and zoning methods should be investigated to ensure that lights are switched off when rooms are vacated.

Apart from the above four general items, all other areas of energy conservation in existing schools are of secondary order of magnitude. However, one significant item should be re-emphasized here, and that is the full commissioning of all components. This is generally not done and deficiencies in this regard can be found in most schools.

Bibliographic Information

Calgary Board of Education, Energy Conservation: Modifications to Existing Schools, Alberta Education, 1980, 38 pages.

Distribution

The report was distributed to all Alberta MLA's, superintendents of schools and secretary treasurers, as well as to the libraries of Alberta universities, Regional Offices of Education, Alberta Teachers' Association, Alberta School Trustees' Association, the ERIC Document Service and Micromedia.

FIELD TESTING OF CITIZENSHIP INSTRUMENTS

Purpose

The purpose of this project was to field test two series of citizenship questionnaires constructed by the Minister's Advisory Committee on Student Achievement (MACOSA) which had been prepared earlier.

Design

The MACOSA measures consisted of ten "Aspects of Citizenship" questionnaires for grade 6, and five such measures for grade 12. During June of 1980 these instruments were administered to grades 6 and 12 students in a sample of schools selected by Alberta Education. A total of 714 grade 6 students and 2,025 grade 12 students were involved. Each student was expected to complete two different questionnaires.

Each classroom teacher in charge of students participating in the field tests was invited to complete a sheet designed as a check on validity. The instructions requested that both teacher and student reactions be recorded.

Analyses of the student and teacher responses centred on the reliability and validity of the instruments. Reliability checks involved computation of coefficient Alpha, in most cases, while validity checks involved a logical examination of patterns of responses.

Findings

Questionnaires that appeared to be promising in terms of validity and reliability, were identified, as well as those that showed little or no promise in their present form.

Recommendations

Items on each questionnaire were analyzed and a recommendation was made as to whether the questionnaire instrument could be useful in its present form, required only minor modifications, needed major modifications, or whether the questionnaire should be revised completely. In some cases, recommendations for specific changes were made.

The validity checks indicated that many students had difficulty in understanding the terms and concepts included in the questionnaires, as well as in coping with the level of language used. In some cases, it was recommended that simple definitions be provided or that the terms not be used at all.

It was recognized that the MACOSA committee had performed a creative and useful task in developing instruments for measuring affective areas, in the Social Studies, but that even the most promising instrument appears to be only in the beginning stages of development. More work and refinement on these instruments would be desirable before being used in schools.

Bibliographic Information

V. R. Nyberg and S. C. T. Clarke, Field Testing of Citizenship Instruments, Alberta Education, December, 1980, 178 pages.

Distribution

The report was sent to all schools which participated in the field testing and is also available to other interested parties on request.

FURTHER OUTCOMES OF THE LANGUAGE ARTS PROJECT (ECRI)
IN THE CARDSTON SCHOOL DIVISION

Purpose

In September, 1975, the Cardston School Division began an extensive project to improve the language arts skills among its elementary students. The division decided to use the Exemplary Centre for Reading Instruction (ECRI) approach, a rather structured instructional design which operates on the principle of mastery learning. The effects of the inservice on teachers were not quantified in the final report nor posted in such a way that effects of the various instructional modes on teachers and subsequently on students could be studied. The purpose of this study was to re-analyze the data available from the earlier study.

Design

The basic strategy of the re-analysis was to focus on what were the effects on students as they progressed from year to year through the program rather than on the changes in status by grades of the school system, throughout the years just prior to, during, and at the conclusion of the program.

Findings and Conclusions

A number of hypotheses were tested using the data obtained previously. The hypothesis that gains in speed and accuracy correlate positively, with gains in DIQ (Differential Intelligence Quotient) at the .05 level of significance was the only one which showed significant correlations.

The writers of the report also offer a number of opinions which might offer fruitful directions for further studies.

Bibliographic Information

M. T. Sillito and W. D. Wilde, Further Outcomes of the Language Arts Project (ECRI) in the Cardston School Division, Alberta Education, December, 1980, 60 pages.

Distribution

The report was distributed to the schools in the Cardston School Division which participated in the original project.

THE FUTURE OF EDUCATION IN THE BONNYVILLE/ COLD LAKE/GRAND CENTRE AREA OF ALBERTA

Purpose

The escalation of population in the Bonnyville/Cold Lake/Grand Centre region is expected to produce dramatic changes in its demands on schools. The seven school boards in the area combined their efforts with Alberta Education in assessing the current situation and projecting with the community what the future needs might be as the expected growth occurs.

Design

Phase I of the project consisted of a compilation of information supplied by the Department of Education in four categories: historical; program; assessment; and facilities, capacities and enrolments. This is presented as background information.

Phase II is the needs assessment which addressed the following specific areas: facilities; programming; transportation; governance; and funding, with emphasis on the implications that energy conservation and development has on all aspects of education in the region. A steering committee with a representative from each school board and the Department of Education had significant involvement at each stage of the study. The methodology used in establishing priorities was SAGE Analysis.

Findings

The data of the composite ratings suggest that quality education for all children in the area will be more likely achieved if facilities are taken care of first. The next most important issue is perceived to be educational funding, followed by problems related to the legal and administrative aspects of educational governance, followed by programing. These four areas were considered to be most important.

Recommendations and Conclusions

The report lists fifty recommendations which deal primarily with the twenty-one major needs identified by the participants in the SAGE analysis. Major recommendations center on governance and other prime areas including the following: The location of new schools is critical as is the upgrading of existing buildings and the construction of new offices. Provision of both facilities and programs in special education, fine arts, vocational and industrial education, home economics, business education, counselling and guidance, language instruction, sports and recreation must be planned and implemented. Attention needs to be given to securing and retaining the competent staff that new conditions will require. The administrative structure must reflect board priorities and be responsive to multiple and changing needs. Decisions are needed concerning the ways by which linguistic, cultural, and moral values will be addressed. Specific plans for adequate communications between and among all groups must be formulated and implemented.

Bibliographic Information

Sage Institute of Canada, The Future of Education in the Bonnyville/Cold Lake/Grand Centre Area of Alberta, Alberta Education, August, 1980, 133 pages.

Distribution

The report was distributed to those present at the final meeting held in the area.

MICROCOMPUTERS IN ALBERTA SCHOOLS

Purpose

The purpose of this study was to provide a status report on the nature and extent to which microcomputers have been introduced into Alberta schools.

Design

The data for this study was collected by mail survey of every school in Alberta.

Findings

The results of the survey showed that nearly 12 per cent of Alberta schools now have one or more microcomputers. The majority of the units are Commodore PET (45 per cent), Apple II (31 per cent) and Radio Shack TRS 80 (19 per cent). They appear to be uniformly distributed across all grade levels. The most frequently reported uses of the microcomputer involved the teaching of computer literacy and computer assisted instruction. The majority of microcomputer users in the schools expressed the need for additional equipment, software and training.

Conclusions and Recommendations

A substantial segment of the educational community in Alberta has been able to respond to the technological impact by providing both equipment and programs on their own initiative. On the other hand, it is clear that there is a large part of the educational community that has not yet taken the initiative and in many cases it is because they feel they need some help. A number of recommendations are included in the report which speak to ways and means by which this needed assistance might be provided.

Bibliographic Information

M. W. Petruk, Microcomputers in Alberta Schools, Alberta Education, February, 1981, 39 pages.

Distribution

The report was distributed to all Alberta school board chairmen, secretaries, and superintendents of schools, and to the libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Western Canada, the ERIC Document Service and Micromedia.

PROJECTING K-12 TEACHER SUPPLY AND DEMAND IN ALBERTA

Purpose

The purpose of this study was to develop means whereby five-year projections of teacher supply and demand could be made for Alberta.

Design

Relevant models in the literature were examined in terms of their potential application to the Alberta situation. Demographic and educational variables were analyzed within the current milieu of socio-economic factors and policies prevailing in Alberta Education. The independent variables affecting teacher supply and demand were defined and calculated as ratios to facilitate the ordering of the data and to expedite the detailed calculations by efficient but dynamic predictor models adaptable to computer programming.

Findings

The study identified several educational variables requiring more precise data if projections of teacher demand are to be made in terms of subject areas and class levels. However, in general terms, the teacher demand predictor model indicated that pupil enrolments will increase over 25,000 by 1985 in the public systems alone. Growth is also projected in Early Childhood Services, independent schools and other special services in Alberta. The overall growth in enrolments is projected to require an increase in the teaching force of some 2,300 teachers assuming some decrease in class sizes.

To the expansion demand in the various sectors of primary, elementary and secondary education must be added a replacement demand due to an average of 13.5 per cent of teachers leaving in any one year. The total annual demand for teachers in Alberta is projected to grow from 3,506 in 1979 to 4,135 in 1985.

In the 1980s, unless the universities are able to expand their enrolments in education, Alberta will be in the precarious situation of importing more teachers than are produced and placed here. Currently, the percentage of teachers who hold their initial certification in Alberta is only 67 per cent. The teacher shortage within Alberta is projected to increase from 1,065 in 1979 to 1,932 in 1985 excluding teacher imports. Alberta imported 1,065 teachers in 1979-80.

Recommendations

It is recommended that the data base in Alberta should be improved to correlate more fully with the predictor models. This would enable more specific analysis of teacher demand and supply by specialization and class level.

Bibliographic Information

G. Loken, Projecting K-12 Teacher Supply and Demand in Alberta, August, 1980, 126 pages.

Distribution

The report was distributed to the library of Alberta Education, the Alberta Teachers' Association, the Alberta School Trustees' Association, and to others on request.

VOCATIONAL EDUCATION IN WEST GERMANY

Purpose

The purpose of this study was to provide information on vocational educational programs in several of the provinces or states of West Germany.

Design

The study reported on vocational education in West Germany as it fits into the overall educational system of the country. Vocational training within the schools and outside of the schools was described. The information for the report was gathered through a review of the relevant literature related to the topic, by site visitations, and through interviews.

Major Findings

The study was carried out by a group of Canadian teachers in West Germany. They reported that general education and the vocational training system of West Germany is interwoven throughout. There is cooperation between the federal and provincial governments in preparing students for the world of work.

Recommendations

The Dual system of West Germany should be studied in detail by a joint body made up of Ministers of Education of the Canadian provinces in cooperation with the federal government.

Bibliographic Information

U. Schweneke, R. Flanagan, F. Flanagan, Vocational Education in West Germany, Alberta Education, February, 1981, 78 pages.

Distribution

The report was distributed to all Alberta superintendents of schools, and to libraries of the Alberta Teachers' Association, Alberta School Trustees' Association, Regional Offices of Education, faculties of education in Canada, the ERIC Document Service and Micromedia.